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IN THE CLAIMS

1. (currently amended) High-performance dispensing system of micro-droplets, comprising:

a substrate (2); ~~covered by a membrane~~

a membrane covering the substrate; and

means (65,70) for deforming the membrane perpendicularly to [[each cavity]] cavities (10) formed in the substrate (2), characterized in that the cavities, etched in a material composing the substrate appear in the shape of wells crossing the substrate with a continuous lateral wall (11) of axial symmetry, and in that each well opens on the upper surface and the lower surface of the substrate as respectively a feeding opening (12) and a duct (14) opened as an ejection nozzle (13), the feeding opening presenting an opening higher than the nozzle (13) of the duct, and the duct presenting a shape ratio between 1 and 20;

wherein the wells are configured in one of a matrix form, a circular concentric form, and a spiral form, or combinations thereof; and

further comprising a plurality of microducts, the plurality of microducts arranged in layers in three dimensions in either the substrate or membrane, each microduct being coupled to one or more wells by connections perpendicular to the upper openings of the wells.

2. (Original) Dispensing system of micro-droplets according to claim 1, wherein the well density reaches 10 000/cm^2, with a flow of at least one million droplets per second.

3. (canceled)

4. (canceled)

5. (currently amended)Dispensing system of micro-droplets according to claim 1, wherein ~~the whole of~~ the means for deforming is managed by a control unit programmable through a multiplexing network to trigger simultaneously or successively the suction or the ejection of identical or different reagents through the wells, by blocks of pre-selected wells or by certain pre-selected wells.

6. (currently amended)Dispensing system of micro-droplets according to claim 1, wherein the material of the substrate or of the membrane is chosen among semiconducting materials, polysilicon, glass, silicon nitrides, ceramics, thermoplastic materials, elastomers, thick photosensitive resins, and electro-formed or electro-eroded metals.

7. (canceled)

8. (currently amended)Dispensing system of micro-droplets according to claim 1 [[7]], wherein the membrane is etched to create a network of the micro-ducts to feed the wells, said micro-ducts being coupled at the tip to at least one reagent feeding reservoir.

9. (Original) Dispensing system of micro-droplets according to claim 1, wherein the means for locally deforming (65, 70) the membrane (3) are composed of electromagnetic, piezoelectric, magnetostrictive, electrostatic actuators or by electro-evaporation.

10. (Original) Dispensing system of micro-droplets according to claim 1, wherein the deformation forces on the membrane are generated by starting a resonance of the membrane (3) or by vibration of the tip of the ducts (14).

11. (currently amended)Dispensing system of micro-droplets according to claim 1, wherein the wells in each line of a matrix configuration are fed by ~~the same~~ a reservoir [[(4)]] through a micro-duct (20) formed in the membrane parallel to the line of wells (10) and coupled laterally to the line or orthogonally to the plane of the substrate (2), the ~~reservoirs~~ reservoir being etched in the membrane or positioned at a distance and linked to the micro-ducts by flexible connections.

12. (currently amended)Dispensing system of micro-droplets according to claim 1, wherein the matrix form ~~dispencing head (1)~~ has a number of lines equal to a multiple of four, in order to proceed to the synthesis of probes of DNA from the four mononucleotides (A, C, T, G) for the preparation of bio-chips, and wherein the wells in each line are fed by a ~~the same~~ reservoir through a micro-duct (32) formed in the membrane (3) parallel to the lines, [[the reservoirs]] each reservoir being etched in the membrane or positioned at a distance and linked to the micro-ducts by flexible connections (7).

13. (currently amended)A ~~Dispensing~~ dispensing cartridge comprising at least a dispensing system according to claim 1, pre-filled with reactants (51), and with titration plates (81) that can show micro-bowls (80) formed by one of [[the]] micro-electronic type etching, [[by]] manufacturing, molding ~~by moulding~~, and [[by]] thermoforming.

14. (currently amended)A ~~Dispensing~~ dispensing kit comprising at least a dispensing system according to claim 1, equipped with at least one aspiration pump (8), and at least one titration plate (81), which can be pre-filled with reagents.

15. (currently amended)The cartridge ~~Cartridge~~ according to claim 13, wherein the titration plate shows micro-bowls equipped with polarized ~~polarised~~

electrodes for electrical or optical cell reactivity testing~~, the cell reactivity test being optical or electrical~~.

16. (currently amended)~~Titration plate~~ The cartridge according to claim 15, wherein a potential difference is applied between said polarized electrodes in order to generate a polarization ~~polarisation~~ in the cell and favor a ~~favour the~~ therapeutical effect on the cells.

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (currently amended)The cartridge ~~Dispensing system of micro-droplets~~ according to claim [[24]] 13, wherein the membrane is etched to create a network of the micro-ducts to feed the wells, said micro-ducts being coupled at the tip to at least one reagent feeding reservoir.

26. (currently amended)[[Kit]] The kit according to claim 14, wherein the titration plate shows micro-bowls equipped with polarized electrodes for electrical or optical cell reactivity testing~~, the cell reactivity test being optical or electrical~~.

27. (New) The kit ~~Titration plate~~ according to claim 26, wherein a potential difference is applied between said polarized electrodes in order to generate a polarization in the cell and favor a ~~favour the~~ therapeutical effect on the cells.

28. (canceled).